November 7, 2002

Request for Proposals--Grants for Water Security Training and Assistance.

TITLE

The Environmental Protection Agency (EPA) gives notice of this Request for Proposals (RFP) for Federal Grants for Water Security Training and Assistance.

UPDATES TO THIS RFP

Please periodically refer to the EPA website containing this RFP for postings of supplemental information relevant to applying for these grants.

SUMMARY AND PURPOSE OF THIS GRANT PROGRAM

In Fiscal Year 02, EPA received a supplemental appropriation to improve the safety and security of the Nation's drinking water systems. The funding is intended to reduce the vulnerability of drinking water systems to terrorist attacks and to enhance their security and ability to respond to emergency situations. In support of that goal, this grant program funds security training activities for non-profit organizations that provide technical support or assistance to drinking water systems serving populations of fewer than 50,000 people. Specifically, EPA is seeking to enhance the ability of non-profit organizations to provide support and training in the areas of vulnerability assessments, emergency response planning and preparation, and security enhancements. Under this program non-profit organizations will obtain security-related training for themselves and their affiliated organizations. While expending grant funds, these non-profit organizations can then train additional trainers at state, tribal, or local agencies who directly or indirectly deal with drinking water systems that serve populations of fewer than 50,000 people at no cost to these agencies. Under this grant program non-profits can only train additional trainers and not end users such as drinking water systems. Security-related support is limited to those that are trained.

On July 9, 2002, EPA issued a water security strategy document entitled "Water Security Strategy for Systems Serving Populations Less Than 100,000/15 MGD or Less." The purpose of the grant program announced by this RFP is to support that strategy by funding activities aimed at providing competent non-profit trainers and technical personnel in the area of drinking water system security. These trainers and technical personnel would then train staff from states, tribes,

or local agencies on drinking water system security. This grant program complements the water system security grants given to states and territories (also outlined in the July 9, 2002, water security strategy document) by providing the needed water security experts/trainers to these groups that can be then utilized in state water security programs. Grantees should coordinate with states, tribes, or local authorities to avoid any duplication of effort and to maximize the utility of the funding received.

In summary, EPA is soliciting grant applications from non-profit organizations that actively provide technical support and/or assistance to drinking water systems and that are interested in applying for federal assistance grants to fund training (train-the-trainers) of their staff, including affiliates, in security issues and to provide no-cost training to state, tribal, or local agencies that directly or indirectly deal with drinking water systems. EPA has allocated $1,500,000 for this grant program and will award grants to eligible non-profit organizations. Awards will be up to $300,000 per organization and must be used for the activities cited above.

STATUTORY AUTHORITY

Sections 1433, added to the Safe Drinking Water Act via Title IV, "Drinking Water Security and Safety," of the "The Public Health Security and Bioterrorism Preparedness and Response Act" (P.L. 107-188).

REGULATORY AUTHORITY

40 CFR Part 30, Uniform administrative requirements for grants and agreements with institutions of higher education, hospitals, and other non-profit organizations:
http://www.access.gpo.gov/nara/cfr/waisidx_01/40cfr30_01.html

ELIGIBILITY FOR THIS GRANT PROGRAM

Non-profit organizations capable of providing training, technical support and/or assistance to drinking water systems as described in this RFP are eligible to apply for this funding. Note that 501(c)(4) non-profit organizations that lobby are not eligible.

REVIEW PROCESS

Proposals will be reviewed and selected by EPA based upon the applicant's ability to meet the stated criteria. (see **CRITERIA** below). This program is competitive and all eligible non-profit organizations may apply. As previously mentioned, EPA has allocated $1,500,000 for this grant program and will make awards of up to $300,000 per organization. If your non-profit

organization requires less than this amount to complete your respective project, then you must apply for that reduced amount.

Note: EPA reserves the right to reject all proposals and make no award.

Timeline

- Proposals must be received on or before 4:00 pm Eastern Time, December 16, 2002.
- Proposal review will occur from December 17, 2002, to January 17, 2002.
- Final grant recipients will be announced no later than January 31, 2003.

CRITERIA

All proposals will be evaluated according to the following criteria through a point system (100 points total):

- Ability of the applicant to clearly and successfully address the three parts of the eligible work activities as stated under **ELIGIBLE WORK ACTIVITIES**. (60 points)
- Ability of the applicant to complete the proposed project in a six-month period. (10 points)
- Ability of the applicant to coordinate eligible work activities with state, tribal, and local agencies. (20 points)
- Knowledge and experience in providing training and assistance to drinking water systems, particularly those systems serving populations of fewer than 50,000 people. (10 points)

DISPUTE RESOLUTION PROCESS

Procedures at 40 CFR 30.63 apply.

DEFINITIONS OF TERMS USED IN THIS GRANT PROGRAM

For purposes of this grant program solicitation, we provide the following definitions:

– **Vulnerability Assessment (V/A).** The definition of a satisfactory V/A and its components are discussed in detail below:

Vulnerability assessments help an organization evaluate susceptibility to potential threats and identify corrective actions that can reduce or mitigate the risk of serious consequences from adversarial actions. Such an assessment for a water system takes into account the vulnerability of the water supply (both ground and surface), transmission, treatment, and

distribution systems. It also considers risks posed to the surrounding community related to attacks on the water system. An effective vulnerability assessment serves as a guide to the water utility by providing a prioritized plan for security upgrades, modifications of operational procedures, and/or policy changes to mitigate the risks and vulnerabilities to the utility's critical assets. The vulnerability assessment provides a framework for developing risk reduction options and associated costs. Water systems should review their vulnerability assessments periodically to account for changing threats or additions to the system to ensure that security objectives are being met. Preferably, a vulnerability assessment is "performance-based," meaning that it evaluates the risk to the water system based on the effectiveness (performance) of existing and planned measures to counteract adversarial actions.

The vulnerability assessment process will range in complexity based on the design and operation of the water system itself. The nature and extent of the vulnerability assessment will differ among systems based on a number of factors, including system size, potential population affected, source water, treatment complexity, system infrastructure and other factors. Security and safety evaluations also vary based on knowledge and types of threats, available security technologies, and applicable local, state and federal regulations. Regardless of these complexities and nuances, the following are **common elements of vulnerability assessments.** These elements are conceptual in nature and not intended to serve as a detailed methodology:

1. Characterization of the water system, including its mission and objectives;
2. Identification and prioritization of adverse consequences to avoid;
3. Determination of critical assets that might be subject to malevolent acts that could result in undesired consequences;
4. Assessment of the likelihood (qualitative probability) of such malevolent acts from adversaries;
5. Evaluation of existing countermeasures; and
6. Analysis of current risk and development of a prioritized plan for risk reduction.

Points to consider related to the six basic elements are listed in Attachment A. The manner in which the vulnerability assessment is performed is determined by each individual water utility. It will be helpful to remember throughout the assessment process that the ultimate goal is twofold: to safeguard public health and safety, and to reduce the potential for disruption of a reliable supply of pressurized water.

–**Emergency Response Plan (ERP)** is a guide for water systems upon which actions and decisions can be based to govern the immediate response to an emergency, including how a system will remedy the problems caused by the emergency and recover from it. The intent of the ERP is to identify certain responsibilities delegated to various teams and employees, present details of the notification procedures, and describe alternate measures and response actions. The

ERP is not intended to be inclusive for each situation or problem that arises and should be updated periodically for continued relevance and viability. It must also comply with applicable state and local ordinances and requirements.

–**Security Enhancements** are procedures and countermeasures that address deficiencies identified in a vulnerability assessment.

ELIGIBLE WORK ACTIVITIES

What activities will the Agency fund under this grant program?

The following activities are eligible for funding under this grant program:

1. Vulnerability Assessment (V/A) Training. Your non-profit organization may apply for funding to train organization staff, including staff from affiliates, in the process of developing or completing a V/A to gain expertise in this area and then provide training and assistance to state, tribal, or local agencies who directly or indirectly deal with drinking water systems serving fewer than 50,000 people. This "train-the-trainer"approach should be coordinated with state, tribal, or local agencies and may include workshops and/or other means of interaction with trainees. The application must describe the V/A training that organization staff will undergo to make them competent. Staff may be trained to utilize tools that assist in V/A development or completion. Guidelines for training organization staff on how to promote V/A concepts and any tool utilization should also be described in the application.

2. Emergency Response Plan (ERP) Training. Your non-profit organization may apply for funding to train organization staff, including staff from affiliates, in the process of developing, completing or updating an ERP to gain expertise in this area and then provide training and assistance to state, tribal, or local agencies who directly or indirectly deal with drinking water systems serving fewer than 50,000 people. This "train-the-trainer"approach should be coordinated with state, tribal, or local agencies and may include workshops and/or other means of interaction with trainees. The application must describe the ERP training that organization staff will undergo to make them competent. Staff may be trained to utilize tools that assist in ERP development or completion, and emergency response planning. Training should also take into account state and local requirements for emergency response planning. Guidelines for training organization staff on how to promote ERP concepts and any tool utilization should also be described in the application.

3. Security Enhancements Training. Your non-profit organization may apply for funding to train organization staff, including staff from affiliates, in various security enhancements for water facilities to gain expertise in this area and then provide training and assistance to

state, tribal, or local agencies who directly or indirectly deal with drinking water systems serving fewer than 50,000 people. This "train-the-trainer"approach should be coordinated with state, tribal, or local agencies and may include workshops and/or other means of interaction with trainees. The application must describe the security enhancement training that organization staff will undergo to make them competent. Staff may be trained to utilize any tools that assist in security enhancement identification, evaluation, and selection. Guidelines for training organization staff on how to promote security enhancement concepts and any tool utilization should also be described in the application.

The total available grant funding offered under this Request for Proposals may be used for the above work areas. If your non-profit organization requires less than this amount to complete these work areas, then you must apply for that reduced amount.

ASSEMBLING THE APPLICATION FOR THESE GRANTS

To apply, you must submit all of the following documents, which will constitute a completed grant application. Each of these blank forms can be downloaded from this web site: http://www.epa.gov/ogd/AppKit/application.htm

If any of the required forms are not submitted, EPA will contact you. Please make every effort to submit a complete application to avoid delays in processing your application.

A._____SF-424 APPLICATION FOR FEDERAL ASSISTANCE

The SF 424 is a standard Federal form to be used by applicants as a required cover sheet for this grant program. Please note that the authorized representative is the person who is able to contract or obligate your agency to the terms and conditions of the grant. (**BE SURE TO SIGN THIS FORM**, preferably with **BLUE INK**.) A copy of the governing body's authorization for you to sign this application as official representative must be on file in the applicant's office.

NOTE: Block No. 10 requires a "Catalog of Federal Domestic Assistance" (CFDA) number be entered. Use CFDA Number 66.478 as this is the new number pending for this grant program.

B._____SF-424A, BUDGET INFORMATION–NON-CONSTRUCTION PROGRAMS

This is a standard Federal form used by applicants as a basic budget. These instructions **have** been modified for this grant program only and do not apply to other Federal Programs.

Complete Section B - Budget Categories - Columns (1), (2) and (5). (DO NOT fill in Sections A, C, D, E, or F.) Fill in the total requirements for funds by object class categories. Please round figures to the nearest dollar.

All applications should contain a breakdown by the relevant object class categories shown in Lines (a-h): columns (1), (2), and (5) of Section B. Some lines may not apply to your application, and no figure need be entered in that case.

– Include Federal funds in column (1)

– Include non-Federal funds in Column 2. IMPORTANT NOTE ABOUT NON-FEDERAL FUNDS: If your organization elects to reflect non-federal funds (otherwise known as a "cost share") in this application, the amount should be included in the budget in column 2 of this form. Note that if your organization includes the cost share in the budget, your organization is obligated to expend the funds as shown and all funds are subject to audit. Since a cost share is not required under this grant program, it need not be listed, and your organization will not be obligated to expend those funds.

If your organization does not elect to include its cost share on the budget, make no entry in column 2.

– Put the totals in column (5).

Line 6(i) - Show the totals of lines 6(a) through 6(h) in each column.

Line 6(j) - Show the amount of indirect costs. If your organization does not already have an approved Indirect Cost Rate, you are required to provide appropriate documentation to support your indirect costs.

Line 6(k) - Enter the total of amounts of Lines 6(i) and 6(j).

Line 7 - No program income is to be generated as part of this grant program. Enter $0.

C._____SF-424B, ASSURANCES–NON-CONSTRUCTION PROGRAMS

D._____SF LLL, DISCLOSURE OF LOBBYING ACTIVITIES (as revised in 1996 -- If Applicable) Review the Certification Regarding Lobbying, cited below, to determine whether or not you need to complete the SF LLL.

E._____CERTIFICATION REGARDING LOBBYING

F._____FORM 5700-49, CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

G._____EPA FORM 4700-4, PRE-AWARD COMPLIANCE REVIEW REPORT

H._____NARRATIVE STATEMENT (WORK PLAN)

(This item and those that follow are not a form found on the above-noted web site.) Please discuss the following in your Work Plan. **LIMITED TO SEVEN PAGES OF CONVENTIONAL BUSINESS-TYPEFACE (COURIER, TIMES NEW ROMAN) SINGLE-SIDED, SINGLE-SPACED TEXT, 12-POINT FONT MINIMUM:**

1. Work area(s) that will be performed under this grant (state all that apply):
    - A. Vulnerability Assessment (V/A) Training
    - B. Emergency Response Plan (ERP) Training
    - C. Security Enhancements Training

    You may list as many work areas as you want to accomplish in this section.

2. Technical Point of Contact (name, title, address, office phone number, fax phone number, e-mail address). This person should be capable of addressing EPA's requests for additional pre-proposal information, if required. You should also provide an additional contact in case the primary contact is not available.

3. Any amount your organization will add to the EPA amount to complete the proposed work (i.e., "cost share"). <u>EPA does not require a cost share for this assistance program.</u> Note that if your organization includes the cost share in the budget, your organization is obligated to expend the funds as shown and all funds are subject to audit.

4. Project Description – This is your opportunity to convince EPA that your project meets the needs of the grant program and is being utilized in a coordinated drinking water security effort with state, tribal, and local agencies. It should cover the core aspects of your project and should answer the following questions:
    - A. What are the goal(s) of the project and how do you expect to achieve your goals?
    - B. What services will be provided and to whom?
    - C. What are the anticipated outcomes and impact of the project? (Quantify outcomes and impacts to the extent possible.)
    - D. What other organizations (if any) are participating as project partners?
    - E. What are the anticipated milestones, time-line or target dates for deliverables (if any)?
    - F. Who is teaching the workshop/training and what are their qualifications?
    - G. What are the training topics?
    - H. How is the training being advertised or distributed?
    - I. Whose logo will be on the agenda and materials?

J. How many training sessions will be provided?

K. What is the percentage distribution of persons attending (i.e., state and local officials, organization personnel, affiliates, etc.)?

L. Do you anticipate any program income being generated from the training? No ____ Yes ____ If "Yes" then how will these funds be used? (40 CFR 30.24)

____ add to funds already committed to further support eligible objectives;

____ deduct from the total allowable project costs.

5. Applicants should clearly mark information they consider confidential and that EPA will make final confidentiality decisions in accordance with regulations at 40 CFR Part 2, Subpart B.

I._____DETAILED ITEMIZED BUDGET

The application must also contain a detailed budget description, and should conform to the following:

Personnel: List all participants in the project by position title. Give the percentage of the budget period for which they will be fully employed on the project (e.g., half-time for half the budget period equals 25%, full-time for half the budget period equals 50%, etc.). Give the annual salary and the total cost over the budget period for all personnel listed. Record the total also on SF-424A, Section B, Line 6(a).

Fringe Benefits: Identify the percentage used, the basis for this computation, and the types of benefits included. Record also on SF-424A, Section B, line 6(b).

Travel: If travel is budgeted, show number of trips, destinations, and purpose of travel as well as costs. Record also on SF-424A, Section B, line 6(c).

Equipment: Equipment purchases are not allowed under this grant program. Equipment is defined as any item having an estimated acquisition cost of $5,000 or more per unit and a useful life of more than one year. Items with a unit cost of less than $5,000 are deemed to be supplies. **THESE GRANT FUNDS CANNOT BE USED TO FUND PHYSICAL PLANT IMPROVEMENTS OR CONSTRUCTION.** Record also on SF-424A, Section B, Line 6(d).

Supplies: "Supplies" means all tangible personal property other than "equipment". The budget detail should identify categories of supplies to be procured (e.g., laboratory supplies or office supplies). Record also on SF-424A, Section B, line 6(e).

Contracts: Identify each proposed contract and specify its purpose and estimated cost. Consultants, also, should be itemized here. As you consider your organization's contractual needs, you may want to look at the Agency's procurement requirements under grants. Please go to http://www.epa.gov/epahome/cfr40.htm . At that site, click on "Chapter 1," "Subchapter B", and "Part 30". Then go to "30.40". For your information, the maximum hourly rate that EPA can reimburse for costs for individual consultants is limited to the maximum daily

rate for a Level IV of the Executive Schedule, which is currently $498.32 (excluding overhead). The portion of consultant costs above this hourly rate must be paid by your organization. Record the total Contracts cost on SF-424A, Section B, line 6(f).
Construction: Construction Costs are not allowable for this program.
Other: List each item in sufficient detail for EPA to determine the reasonableness and allowability of its cost.
Indirect Costs: Your organization is not required to charge indirect costs. If indirect charges are budgeted, indicate the approved rate and base. Please indicate how indirect charges were calculated for this project, and remember to attach a copy of your current organization's indirect cost rate agreement (next document noted below). If your organization does not already have an approved Indirect Cost Rate, EPA will require your organization to provide appropriate documentation to support indirect costs. Record total indirect costs also on SF-424A, Section B, Line 6(j).

Note on Allowable Costs for this grant program: The cost principles for awards under this program will be found in OMB Circular A-122 for non-profit recipients and in the Federal Acquisition Regulations (FAR) for profit makers. The related information may be viewed on these web sites.

OMB Circular A-122: http://www.whitehouse.gov/omb/circulars/a122/a122.html

Federal Acquisition Regulations: http://www.arnet.gov/far/loadmainre.html

EPA provides a general example of a completed budget at
http://www.epa.gov/ogd/hqgrant/form/budget%20sample.pdf

J._____COPY OF NEGOTIATED INDIRECT COST RATE AGREEMENT OR PROPOSAL IF AVAILABLE (ONLY REQUIRED IF THE RECIPIENT IS CHARGING INDIRECT COSTS)

K._____DOCUMENTATION DEMONSTRATING THE QUALIFICATIONS OF THE PERSONS OR COMPANY TO COMPLETE THE PROJECT
Discuss the qualifications of persons (contractor, consultant, in-house staff) who will perform the work, which is the most critical part of this grant program.

L._____KEY CONTACT INFORMATION
(Not a form on the website) Please include the full name, title, address, phone number, and e-mail address of the following individuals responsible for the grant:

- Authorized Representative - Original awards and amendments will be sent to this individual for review and acceptance, unless otherwise indicated.

- Payee - Individual authorized to accept payments.

- Administrative Contact - individual to contact concerning administrative matters, i.e., indirect cost rate computation, re-budgeting requests, etc.

Official notification of the actual grant award will be made to the organization by EPA's Grants Administration Division in accordance with standard Agency practices.

APPLICATION DUE DATES

EPA will consider all grant applications received on or before 4:00 pm Eastern Time, December 16, 2002, equating to 30 days' time from today, the date EPA is sending notification of this RFP to eligible non-profit organizations. Proposals received after the due date will not be considered.

This program is competitive, and all eligible non-profit organizations that submit complete applications and satisfactory work plans by the deadline as specified in this RFP will be considered for grant awards.

WHERE TO APPLY & CONTACT FOR FURTHER INFORMATION

For further information please contact Andrew Bielanski at (202) 564- 3824 or at bielanski.andrew@epa.gov .

Since postal mail delays are to be expected that could inordinately delay EPA's receipt of applications, we require that applicants use an express mail or courier service to transmit applications to the address below. Deliver signed original AND one copy to:

US Environmental Protection Agency (4601M)
Attention: Drinking Water System Security Grant Program
Room 2104A EPA East Building
1201 Constitution Ave, NW
Washington, DC 20004
(202) 564-3750 (phone number for courier to use, if requested)

NOTE: Do NOT submit the application in any type of binder.

ADMINISTRATIVE TERMS AND CONDITIONS TO BE APPLIED TO THESE GRANTS

1. In accordance with Section 2(d) of the Prompt Payment Act (P.L. 97-177), Federal funds may not be used by the recipient for the payment of interest penalties to contractors when bills are paid late nor may interest penalties be used to satisfy cost sharing requirements. Obligations to pay such interest penalties will not be obligations of the United States.

2. The recipient understands that none of the funds for this project (including funds contributed by the recipient as cost sharing) may be used to pay for the travel of Federal employees or for other costs associated with Federal participation in this project. Except, however, if a Federal agency is selected through the recipient's procurement process to carry out some of the work as a contractor to the recipient, funds may be used to allow necessary Federal travel and other costs associated with Federal participation in this project.

3. The recipient agrees to comply with the MBE/WBE terms and conditions (will accompany the award package a grantee receives), which state, in part, that recipients must make positive efforts to utilize small businesses, minority-owned firms, and women's business enterprises whenever possible, and also take several steps to further that goal. To view the full text of these procurement procedures under 40 CFR 30.44, go to http://www.gpo.gov/nara/cfr/ and click on "Retrieve CFR sections by citation" then fill in the boxes with 40 (title), 30 (part), and 44 (section).

4. By accepting this agreement for the electronic method of payment through the Automated Clearing House (ACH) network using the EPA-ACH payment system, the recipient agrees to:

(a) Request funds based on the recipient's immediate disbursement requirements by presenting an EPA-ACH Payment Request to your EPA Servicing Finance Office (see EPA-ACH Payment System Recipient's Manual for additional information, which will be sent to everyone awarded a grant under this program).
(b) Provide timely reporting of cash disbursements and balances in accordance with the EPA-ACH Payment System Recipient's Manual; and
(c) Impose the same standards of timing and reporting on sub-recipients, if any.

Failure on the part of the recipient to comply with the above conditions may cause the recipient to be placed on the reimbursement payment method.

5. As required by EPA regulations, the recipient agrees to submit a final **Financial Status Report (FSR) (Standard Form 269)** within 90 days after the end of this budget period to the following address: U.S. Environmental protection Agency
Las Vegas Financial Management Center
P.O. Box 98515
Las Vegas, NV 89193-8515

When the recipient submits a final FSR, the recipient will, in one of the following ways, make an adjustment for the amount of Federal funds, if any, received in excess of the EPA share of the reported total budget period costs:

(a) If the recipient is paid through EPA-ACH, they shall, in accordance with the payment guidance dated May 1995 (will accompany the grant award package), refund excess assistance funds by either submitting a credit on a current EPA-ACH Payment Request or by sending a check to the lockbox address: U.S. Environmental Protection Agency, Las Vegas Financial Management Center, P.O. Box 371293M, Pittsburgh, Pennsylvania 15251.

(b) If the recipient is paid by treasury check, they shall, in accordance with the payment guidance dated May 1995, refund excess assistance funds by submitting a check to the lockbox address in paragraph (a).

If funds are due to the recipient at the time of submission of the final FSR, the recipient shall follow the procedures as outlined on the payment guidance to request the appropriate amount of funds from EPA.

6. EPA participation in the salary rate (excluding overhead) paid to individual consultants is limited to the maximum daily rate for a Level IV of the Executive Schedule, which is currently $498.32.

7. The recipient agrees to provide EPA Form 5700-53, Lobbying and Litigation Certificate, as mandated by EPA's annual appropriations act. A chief executive officer of any entity receiving funds under this Act shall certify that none of these funds have been used to engage in the lobbying of the Federal Government or in litigation against the United States unless authorized under existing law. The certification must be submitted in accordance with the instructions provided by the EPA award official and is due 90 days after the end of the project period.

8. The recipient agrees to submit to the EPA Project Officer within 90 days after the expiration or termination of the approved project period a final report and at least one reproducible copy suitable for printing. The final report shall document project activities over the entire project period and shall describe the recipient's achievements with respect to stated project purposes and objectives.

9. In accordance with EPA guidance, OMB Circular No. A-122, and the Federal Acquisition Regulations, as appropriate, the recipient agrees that it will not use assistance funds (Federal or non-Federal share) for lobbying or political activities.

10. In accordance with Section 18 of the Lobbying Disclosure Act of 1995, P.L. 105-65, 109 Stat. 691, the recipient affirms either that:

(a) it is not a non-profit organization described in Section 501(c)(4) of the Internal Revenue Code of 1986; –OR–

(b) it is a non-profit organization described in Section 501(c)(4) of the Internal Revenue Code of 1986 but does not and will not engage in lobbying activities as defined in Section 3 of the Lobbying Disclosure Act of 1995.

Attachment A

Points to Consider in a Vulnerability Assessment

1. Characterization of the water system, including its mission and objectives. Answers to the following system-specific questions may be helpful in characterizing the water system.

- What are the important missions of the system to be assessed? Define the highest priority services provided by the utility. Identify the utility's customers (e.g., public, government, military, industrial, critical care, retail operations, firefighting).

- What are the most important facilities, processes, and assets of the system for achieving the mission objectives and avoiding undesired consequences? Describe the utility facilities, operating procedures, and management practices that are necessary to achieve the mission objectives. Describe how the utility operates (e.g., water source [including ground and surface water], treatment process, storage methods and capacity, chemical use and storage, and distribution system). In assessing those assets that are critical, consider critical customers, dependence on other infrastructures (e.g., electricity, transportation, other water utilities), contractual obligations, single points of failure (e.g., critical aqueducts, transmission systems, aquifers etc.), chemical hazards and other aspects of the utility's operations, or availability of other utility capabilities that may increase or decrease the criticality of specific facilities, processes and assets.

2. Identification and prioritization of adverse consequences to avoid.

- When considering adverse consequences, the water system should take into account the impacts that could substantially disrupt the ability of the system to provide a safe and reliable supply of drinking water or otherwise present significant public health concerns to the surrounding community. In general, water systems should use the vulnerability assessment process to determine how to reduce risks associated with the consequences of significant concern.

- Ranges of consequences or impacts for each of these events should be identified and defined. Factors to be considered in assessing the consequences may include: magnitude of service disruption; economic impact (such as replacement and installation costs for damaged critical assets or loss of revenue due to service outage); number of illnesses or

deaths resulting from an event; impact on public confidence in the water supply; chronic problems arising from specific events; or other indicators of the impact of each event as determined by the water utility. Risk reduction recommendations at the conclusion of the vulnerability assessment should strive to prevent or reduce each of these consequences.

3. Determination of critical assets that might be subject to malevolent acts that could result in undesired consequences.

- What are the malevolent acts that could reasonably cause undesired consequences? Consider the operation of critical facilities, assets and/or processes and assess what an adversary could do to disrupt these operations. Such acts may include physical damage to or destruction of critical assets, contamination of water, intentional release of stored chemicals, interruption of electricity or other infrastructure interdependencies.

- Regarding water system vulnerabilities and determination of critical assets, the "Public Health Security and Bioterrorism Preparedness and Response Act of 2002" (PL 107-188) states that the utility must review the vulnerability of its system to a terrorist attack or other intentional acts intended to substantially disrupt the ability of the system to provide a safe and reliable supply of drinking water. The vulnerability assessment shall include, but not be limited to, a review of:
  - Pipes and constructed conveyances
  - Physical barriers
  - Water collection, pretreatment and treatment facilities
  - Storage and distribution facilities
  - Electronic, computer or other automated systems which are utilized by the public water system (e.g., Supervisory Control and Data Acquisition (SCADA))
  - The use, storage, or handling of various chemicals
  - The operation and maintenance of such systems

4. Assessment of the likelihood (qualitative probability) of such malevolent acts from adversaries (e.g., terrorists, vandals).

- Based on the critical assets of the water system, one can determine the possible modes of attack that might result in consequences of significant concern. However, the objective of this step of the assessment is to move beyond what is merely possible and determine the likelihood of a particular attack scenario. This is a very difficult task as there is often insufficient information to determine the likelihood of a particular event with any degree of certainty.

- The threats (the kind of adversary and the mode of attack) selected for consideration during a vulnerability assessment will dictate, to a great extent, the risk reduction measures that should be designed to counter the threat(s). Some vulnerability assessment methodologies refer to this as a Design Basis Threat (DBT) where the threat serves as the

basis for the design of countermeasures, as well as the benchmark against which vulnerabilities are assessed. It should be noted that there is no single DBT or threat profile for all water systems in the United States. Differences in geographic location, size of the utility, previous attacks in the local area and many other factors will influence the threat(s) that water systems should consider in their assessments. From this perspective, water systems should consult with the local FBI and/or other law enforcement agencies, public officials, and others to determine the threats upon which their risk reduction measures should be based. Utilities may also want to review their incident reports to better understand past breaches of security.

5. Evaluation of existing countermeasures.

Having determined how various critical assets, processes, and operations are related to the system's mission and the potential for malevolent actions to cause adverse consequences, the effectiveness of existing security measures and operational practices should be considered. Depending on countermeasures already in place, some critical assets may already be sufficiently protected. This step will aid in identification of the areas of greatest concern, and help to focus priorities for risk reduction.

- *What capabilities does the system currently employ for detection, delay and response?* Identify and evaluate current detection capabilities such as intrusion detection systems, water quality monitoring, operational alarms, guard post orders, and employee security awareness programs. Identify current delay mechanisms such as locks and key control, fencing, structure integrity of critical assets and vehicle access checkpoints. Identify existing policies and procedures for evaluation and response to intrusion and system malfunction alarms, adverse water quality indicators, and cyber system intrusions. It is important to determine the performance characteristics. Poorly operated and maintained security technologies provide little or no protection.

- *What cyber protection system features does the utility have in place?* Assess what protective measures are in-place for the SCADA and business-related computer information systems such as firewalls, modem access, Internet and other external connections, including wireless data and voice communications, and security policies and protocols. Identify whether vendors have access rights and/or "backdoors" to conduct system diagnostics remotely.

- *What security policies and procedures exist, and what is the compliance record for them?* Identify existing policies and procedures concerning personnel security, physical security, key and access badge control, control of system configuration and operational data, chemical and other vendor deliveries, and security training and exercise records.

6. Analysis of current risk and development of a prioritized plan for risk reduction.

- The information gathered on threat, critical assets, water utility operations, consequences, and existing countermeasures should be analyzed to determine the current level of risk. The utility should then determine whether current risks are acceptable or risk reduction measures should be pursued.

- Recommended actions should measurably reduce risks by reducing vulnerabilities and/or consequences through improved deterrence, delay, detection, and/or response capabilities or by improving operational policies or procedures. Selection of specific risk reduction actions should be completed prior to considering the cost of the recommended action(s). Utilities should carefully consider both short- and long-term solutions. An analysis of the cost of short- and long-term risk reduction actions may impact which actions the utility chooses to achieve its security goals.

- Utilities may also want to consider security improvements in light of other planned or needed improvements. Security and general infrastructure may provide significant multiple benefits. For example, improved treatment processes or system redundancies can both reduce vulnerabilities and enhance day-to-day operation.

- Generally, strategies for reducing vulnerabilities fall into three broad categories: 1) sound business practices, 2) system upgrades, and 3) security upgrades. Sound business practices affect policies, procedures, and training to improve the overall security-related culture at the drinking water facility. For example, it is important to ensure rapid communication capabilities exist between public health authorities and local law enforcement and emergency responders. System upgrades include changes in operations, equipment, processes, or infrastructure itself that make the system fundamentally safer. Security upgrades improve capabilities for detection, delay, or response.